SEQUENCE LISTING

<110> FUTAMURA, MANABU
     YOU, MING
     ZHANG, ZHONGQIU

<120> GENE EXPRESSION AND POLYMORPHISMS ASSOCIATED WITH LUNG
     CANCER

<130> 22727-04393

<140> 10/595,571
<141> 2006-04-27

<150> PCT/US04/35690
<151> 2004-10-27

<150> 60/514,673
<151> 2003-10-27

<160> 38

<170> PatentIn Ver. 3.3

<210> 1
<211> 716
<212> PRT
<213> Homo sapiens

<400> 1
Met Ser Gly Ser Lys Lys Lys Lys Val Thr Lys Ala Glu Arg Leu Lys
 1   5   10   15

Leu Leu Gln Glu Glu Glu Glu Arg Arg Leu Lys Glu Glu Glu Glu Ala
            20   25   30

Arg Leu Lys Tyr Glu Lys Glu Glu Met Glu Arg Leu Glu Ile Gln Arg
        35   40   45

Ile Glu Lys Glu Lys Trp His Arg Leu Glu Ala Lys Asp Leu Glu Arg
    50   55   60

Arg Asn Glu Glu Leu Glu Glu Leu Tyr Leu Leu Glu Arg Cys Phe Pro
 65   70   75   80

Glu Ala Glu Lys Leu Lys Gln Glu Thr Lys Leu Leu Ser Gln Trp Lys
                85   90   95

His Tyr Ile Gln Cys Asp Gly Ser Pro Asp Pro Ser Val Ala Gln Glu
            100   105   110

Met Asn Thr Phe Ile Ser Leu Trp Lys Glu Lys Thr Asn Glu Thr Phe
            115   120   125

Glu Glu Val Ile Glu Lys Ser Lys Val Val Leu Asn Leu Ile Glu Lys
    130   135   140

Leu Lys Phe Ile Leu Leu Glu Thr Pro Pro Cys Asp Leu Gln Asp Lys
145   150   155   160

Asn Ile Ile Gln Tyr Gln Glu Ser Ile Leu Gln Leu Gln Glu Leu Leu
              165   170   175

His Leu Lys Phe Gly Val Ala Thr Glu Ile Leu Leu Lys Gln Ala Ser
              180   185   190

Thr Leu Ala Asp Leu Asp Ser Gly Asn Met Glu Lys Val Ile Lys Asp
              195   200   205

Glu Asn Val Thr Leu Tyr Val Trp Ala Asn Leu Lys Lys Asn Pro Arg
              210   215   220

His Arg Ser Val Arg Phe Ser Glu Thr Gln Ile Gly Phe Glu Ile Pro
225   230   235   240

Arg Ile Leu Ala Thr Ser Asp Ile Ala Val Arg Leu Leu His Thr His
              245   250   255

Tyr Asp His Val Ser Ala Leu His Pro Val Ser Thr Pro Ser Lys Glu
              260   265   270

Tyr Thr Ser Ala Val Thr Glu Leu Val Lys Asp Asp Val Lys Asn Val
              275   280   285

Glu Lys Ala Ile Ser Lys Glu Val Glu Glu Glu Ser Lys Gln Gln Glu
              290   295   300

Arg Gly Ser His Leu Ile Gln Glu Glu Glu Ile Lys Val Glu Glu Glu
305   310   315   320

Gln Gly Asp Ile Glu Val Lys Met Ser Ser Ala Glu Glu Glu Ser Glu
              325   330   335

Ala Ile Lys Cys Glu Arg Glu Met Lys Val Leu Ser Glu Thr Val Ser
              340   345   350

Ala Ala Gln Leu Leu Leu Val Glu Asn Ser Ser Glu Lys Pro Asp Phe
              355   360   365

Phe Glu Asp Asn Val Val Asp Leu Cys Gln Phe Thr Thr Leu Gly Gly
              370   375   380

Val Tyr His Leu Asp Ile Leu Glu Leu Pro Pro Gln Cys Lys Pro Val
385   390   395   400

Lys Gly Trp Met Ile Val Glu Ile Leu Lys Glu Gly Leu Gln Lys Tyr
              405   410   415

Thr Tyr Pro Pro Glu Thr Thr Glu Glu Phe Glu Thr Glu Asn Ala Phe
              420   425   430

Pro Pro Ile Glu Val Thr Leu Glu Val His Glu Asn Val Ile Phe Phe
              435   440   445

Glu Asp Pro Val Val Val Arg Trp Asp Ala Glu Gly Lys His Trp Arg
    450   455   460

Thr Asp Gly Ile Ser Asn Val Ser Tyr Lys Pro Lys Glu Arg Leu Val
465   470   475   480

Thr Phe Ser Leu Asp Thr Phe Gly Pro Val Thr Leu Ile Gln Asp Ala
                485   490   495

His Ile Asn Met Pro Tyr Gln Ser Trp Glu Leu Arg Pro Leu Asp Val
            500   505   510

Asn Lys Val Leu Leu Thr Val Thr Thr Val Phe Thr Glu Ile Gln Ile
        515   520   525

Gln Ile Lys Glu Asn Leu Cys Met Leu Ser Ser Ile Lys Leu Lys Asp
    530   535   540

Lys Lys His Ile Ser Ile Leu Glu Gly Thr Trp Met Thr Pro Ile Pro
545   550   555   560

Phe Ile Ile Ala Leu Lys Glu Ala Gly Leu Asn Ile Phe Pro Thr Arg
            565   570   575

His Ser His Phe Tyr Val Ile Ile Asn Asn Lys Val Pro Leu Val Glu
            580   585   590

Val Lys Ala Tyr Arg Gln Met Ala Leu Leu Ser Ser Ala Phe Ala Phe
        595   600   605

Gly Trp Ser Lys Trp Asn Leu Leu Cys Asn Ser Thr Lys Val Val Phe
    610   615   620

Lys Val Arg Glu His Leu Thr Glu Glu Cys Thr Glu Asn Pro Asn Trp
625   630   635   640

Ala Leu Leu Met Phe Ser Gly Asp Arg Ala Gln Arg Leu Lys Ile Lys
            645   650   655

Glu Glu Ser Glu Ala Phe Ser Glu Ala Leu Lys Glu Glu Thr Glu Phe
            660   665   670

His Ser Thr Leu Tyr His Met Val Lys Asp Phe Ala Ser Glu Glu Ala
        675   680   685

Met Glu Lys Val Arg Ser Ser Asn Cys Gln Phe Val Asn Ser Val Cys
    690   695   700

His Met Leu Leu Ser Thr Arg Leu Leu Ser Tyr Ser
705   710   715

<210> 2
<211> 2151
<212> DNA
<213> Homo sapiens

<400> 2
atgtctggca gtaagaaaaa gaaagtcacc aaagctgaac gattgaagct gctacaagag 60
gaggaggaga gacgactgaa agaggaagag gaagcccgtt tgaaatatga gaaagaagaa 120
atggaaaggc ttgaaataca gcgaattgag aaagaaaaat ggcatcgact tgaagcaaaa 180
gatctagaaa ggagaaatga agaacttgaa gaactttatt tattagagag gtgttttcct 240
gaagcagaga aattgaaaca ggaaactaaa ttgctttctc agtggaagca ctacattcaa 300
tgtgatggga gtcctgatcc ttcagtagcc caagaaatga acacgtttat tagtttgtgg 360
aaagagaaaa caaatgagac ttttgaggaa gtgattgaga gagtaaagt agtgctaaat 420
ttaattgaga aattgaaatt tattttactg gaaactccac catgtgattt gcaagataaa 480
aatataatac agtaccaaga atcaatacta caactgcagg agctccttca tcttaaattc 540
ggtgtagcca cagaaatact tctcaaacaa gctagtactt tggcagatcg ggacagtgga 600
aatatggaaa aagtcattaa agatgaaaat gttactctgt atgtgtgggc aaacctcaag 660
aagaatccaa ggcacagaag tgttagattc tctgaaacac aaattggatt tgagattcca 720
aggatattag caacaagtga cattgctgta cgactcctgc atacccacta tgatcatgtt 780
tctgcactgc accctgtttc aacaccatca aaagaataca cttctgcagt aactgagctt 840
gtcaaagatg atgttaagaa tgtagaaaaa gcaatcagca aggaggtcga agaagagtcc 900
aaacaacaag aaagagggtc tcacttaatt caggaggaag aaataaaagt tgaggaggaa 960
caaggtgata ttgaagtgaa aatgagttct gctgaggaag aatctgaagc cataaaatgt 1020
gaacgagaga tgaaagtatt aagtgaaact gtttcagcag cacagttgtt gctggtagag 1080
aattcttctg aaaagccaga tttctttgaa gacaatgtgg tggatttatg ccagttcaca 1140
actctgggtg gagtatacca cttggatatt ttggagcttc ctccacagtg taaaccagtg 1200
aagggatgga tgattgtgga aatactcaaa gaaggattac agaaatacac atatcctccg 1260
gaaactacag aagagtttga gacagaaaat gctttccac ctatagaggt cacacttgag 1320
gttcatgaga atgtaatctt ttttgaggat cctgtggttg taaggtggga tgctgaaggt 1380
aaacattgga gaactgatgg catcagcaat gtatcctaca aaccaaaaga aagacttgta 1440
acattcagcc tggcaccctt tggccctgtt accttgattc aagatgctca tattaacatg 1500
ccgtaccagt catgggaact aagaccactt gatgtaaata aagtactttt aactgtgact 1560
acagtatttt ctgagattca aatacaaatt aaggaaaacc tctgcatgtt atcttcaatc 1620
aaactaaaag acaagaaaca catctctatt ttggaaggaa cctggatgac tcctattcct 1680
ttcattattg ctttgaaaga agctggactg aatatctttc ctactagaca ctctcatttt 1740
tatgttatta taaacaataa ggttcctttg gtagaagtga aagcttatcg acagatggcc 1800
ctactaagtt ctgcttttgc atttggttgg agcaagtgga acctactatg taattctaca 1860
aaagtcgtat ttaaggtgag ggaacacctt actgaagaat gtactgagaa tcctaattgg 1920
gcccttttaa tgtttagtgg tgacagagca caaagactga agatcaagga agagagtgag 1980
gcattttctg aagcacttaa agaagaaact gagtttcatt ctacttatat tcacatggtg 2040
aaggattttg cttctgagga agcaatggag aaagtcagga gttccaactg tcagtttgtc 2100
aactctgtgt gccacatgct gctctctacc agattgctca gctactccta a 2151

<210> 3
<211> 730
<212> PRT
<213> Mus sp.

<400> 3
Met Ala Pro Lys Ser Lys Lys Ala Pro Ser Lys Lys Lys Met Thr Lys
  1   5   10   15

Ala Glu Arg Leu Arg Leu Met Gln Glu Glu Glu Arg Arg Leu Lys
              20   25   30

Glu Glu Glu Glu Ala Arg Leu Lys Phe Glu Lys Glu Glu Gln Glu Arg
          35   40   45

Leu Glu Ile Gln Arg Ile Glu Arg Glu Lys Trp Asn Leu Leu Glu Lys
      50   55   60

Lys Asp Leu Glu Arg Arg Ser Gln Glu Leu Glu Glu Leu Ala Leu Leu
65   70   75   80

Glu Gly Cys Phe Pro Glu Ala Glu Lys Gln Lys Arg Glu Ile Arg Ala
                85   90   95

Leu Ala Gln Trp Lys His Tyr Thr Glu Cys Asp Gly Ser Pro Asp Pro
                100   105   110

Trp Val Ala Gln Glu Met Asn Thr Phe Ile Ser Leu Trp Glu Glu Glu
                115   120   125

Lys Asn Gln Ala Phe Glu Gln Val Met Glu Lys Ser Lys Leu Val Leu
            130   135   140

Ser Leu Ile Glu Lys Val Lys Leu Ile Leu Leu Glu Thr Pro Thr Tyr
145   150   155   160

Glu Leu Asp His Arg Thr Val Leu Gln His Gln Gly Ser Ile Leu Arg
                165   170   175

Leu Gln Glu Leu Leu Ser Leu Lys Ile Asn Val Ala Thr Glu Leu Leu
            180   185   190

Leu Arg Gln Ala Ser Asn Leu Ala Asp Leu Asp Thr Gly Asn Met Glu
            195   200   205

Lys Ile Ile Lys Asp Glu Asn Val Thr Leu Tyr Val Trp Ala Asn Leu
            210   215   220

Lys Lys Asn Pro Arg His Arg Ser Val Arg Phe Ser Glu Thr Gln Ile
225   230   235   240

Gly Phe Glu Ile Pro Arg Ile Leu Ala Thr Ser Asn Val Ala Leu Arg
                245   250   255

Leu Leu His Thr Arg Tyr Asp His Ile Thr Pro Leu Phe Pro Ile Ala
                260   265   270

Val Thr Glu Gln Asn Gln Asn Pro Val Gly Ala Glu Gln Val Asn Val
                275   280   285

Glu Glu Ser Thr Glu Lys Ala Met Thr Glu Glu Lys Leu Phe Thr Glu
            290   295   300

Glu Lys Ala Ala Asn Glu Asp Glu Gln Pro Lys Ala Glu Gln Glu Arg
305   310   315   320

Glu Leu Asn Leu Val Gln Glu Glu Asn Lys Tyr Glu Ala Ile Glu Asn
                325   330   335

Thr Val Leu Gln Arg Thr Ser Asp Ser Glu Gly Glu Asp Ser Gln Thr
            340   345   350

Thr Gln Leu Glu Leu Glu Met Lys Leu Leu Ser Glu Ala Val Leu Ala
            355   360   365

Ala Gln Leu Cys Leu Val Glu Asn Val Val Glu Leu Pro Glu Ala Ser
    370   375   380

Gln Ala Tyr Lys Val Asp Leu Cys His Phe Ser Thr Leu Gly Gly Val
385   390   395   400

Tyr His Leu Asp Val Leu Glu Leu Pro Pro Gln Cys Lys Pro Val Lys
            405   410   415

Gly Trp Val Leu Val Glu Ile Leu Gln Glu Gly Leu Gln Arg Phe Ile
        420   425   430

Tyr Pro Pro Asp Thr Thr Glu Glu Pro Asp Pro Asp Val Thr Phe Pro
        435   440   445

Pro Ile Glu Val Thr Leu Glu Ile His Lys Ser Val Ile Phe Phe Glu
    450   455   460

Arg Pro Arg Val Val Arg Trp Asp Asn Glu Gly Lys Phe Trp Arg Ser
465   470   475   480

Asp Gly Ile Ser Ser Val Tyr Tyr Asn Arg Glu Asp Arg Leu Leu Thr
            485   490   495

Phe Ser Met Asp Thr Leu Gly Pro Val Thr Leu Ile Gln Asp Ala His
            500   505   510

Val Asn Met Pro Tyr Gln Ser Trp Glu Met Ser Pro Cys Gly Met Asn
        515   520   525

Lys Val Leu Leu Ile Val Lys Thr Val Phe Met Glu Leu Gln Ile Tyr
    530   535   540

Ile Lys Glu Asn Leu Cys Met Leu Ala Ser Val Lys Leu Arg Gly Lys
545   550   555   560

Gly Leu Glu Phe His Leu Lys Gly Lys Trp Met Ala Pro Ile Pro Phe
            565   570   575

Ile Leu Ala Leu Lys Glu Ala Gly Leu Asn Ile Phe Pro Ala Val Tyr
            580   585   590

Ser His Phe Tyr Val Val Ile Asn Asn Lys Val Pro Gln Val Glu Leu
        595   600   605

Lys Ala Tyr Arg Gln Met Ala Leu Leu Ser Ser Ala Phe Ser Phe Gly
    610   615   620

Trp Ser Lys Trp Asn Met Val Cys Asn Ser Thr Arg Val Val Ile Arg
625   630   635   640

Val Arg Glu Gln Leu Ser Glu Glu Thr Glu His His Thr Trp Ser Leu
            645   650   655

Leu Met Phe Ser Gly Asp Arg Ala Gln Met Leu Lys Met Gln Glu Glu
            660   665   670

Asn Asp Lys Phe Ser Glu Ala Leu Arg Glu Gly Thr Glu Phe His Ser
        675   680   685

Thr Leu Tyr His Met Met Lys Asp Phe Ala Ser Pro Val Ala Met Glu
    690   695   700

Arg Val Arg His Ser Asn Cys Gln Phe Ile Asp Ser Val Cys Tyr Met
705   710   715   720

Leu Leu Ser Ile Arg Val Leu Ser Tyr Ser
            725   730

<210> 4
<211> 2413
<212> DNA
<213> Mus sp.

<400> 4
ttgtgagtgg gcgtggcctg tcgtcttgac aaccgtgagc gttcctgctc tgcagcgttc 60
acttttccct aagcaaagtt cctgcttctg tcatggctcc caaatcaaaa aaggctccca 120
gtaagaaaaa gatgaccaaa gccgagcgac tgcggctgat gcaggaggag gaggagagac 180
gcctgaagga ggaagaagag gcgcggctga aatttgaaaa agaagaacag gaaaggctag 240
aaatacagcg gattgagaga gagaagtgga atctgctgga aaagaaagac ctagaacgaa 300
gaagccaaga gcttgaagag cttgctctgc tcgagggttg ttttcctgaa gcagagaaac 360
agaagcggga aattcgagct ctggctcagt ggaagcacta cacggagtgt gatgggagcc 420
ccgacccttg ggttgcccag aaatgaaca cgttcattag cctgtgggaa gaggagaaga 480
accaggcctt tgaacaagtg atggagaaaa gcaaactggt gctgtcgttg attgaaaagg 540
tgaagttaat tttactggaa actccgacat atgagctgga ccacaggact gtcctgcagc 600
atcaagggtc aattctgcgc ctacaagagc tgctcagcct gaagatcaac gtggccacag 660
aactacttct tcgacaagct agtaacttag cagatctgga cactgggaat atggagaaaa 720
tcatcaaaga tgagaatgtc accctgtacg tgtgggcaaa cctcaaaaag aatccaaggc 780
accggagtgt gaggttctca gagacacaaa ttggatttga aatcccaagg atcctggcca 840
cgagcaatgt tgctcttcgg cttctacaca cacgctatga ccacatcaca cccttgttcc 900
ccattgccgt cactgagcaa aatcaaaacc ccgtgggagc agagcaagtc aacgtcgagg 960
aaagtacaga aaaggccatg actgaagaaa agctctttac tgaagaaaaa gctgccaacg 1020
aagatgagca gcccaaggct gaacaggaaa gagagctcaa cttggttcaa gaggagaaca 1080
aatatgaagc tatagagaac actgtcttac aaaggacttc cgactctgaa ggggaggatt 1140
cccaaaccac ccaacttgaa ctggagatga gctgctgag tgaagcagtc ttagcagcac 1200
agctgtgcct ggtagagaat gtggtggaat tgccagaagc ctcacaagcc tacaaggtgg 1260
acttgtgcca tttctctacc ctgggcggcg tgtaccacct ggatgttctg gagctgcccc 1320
ctcagtgcaa gcctgtgaag ggctgggtgc tagtggagat actccaggaa ggactgcaga 1380
ggtttatata tcctccagac accacagagg aacctgatcc agacgtcacc ttcccaccca 1440
tagaggtcac actggagatc cacaagagcg tcatcttctt tgagcgccct agggtcgtca 1500
ggtgggacaa tgaaggtaaa ttctggcggt cagatggcat cagcagtgtc tattacaacc 1560
gagaagacag gctcctaacc ttcagtatgg atactttggg ccctgtgacc ttgattcagg 1620
atgctcacgt gaacatgcct taccagtcct gggagatgag tccctgtggc atgaacaaag 1680
tccttctaat agtgaagacg gttttcatgg agctccagat atacatcaag gaaaacctct 1740
gcatgctggc ttcagtgaaa ctgaggggca agggactcga gtttcatcta aaaggaaaat 1800
ggatggctcc tatacccttc attctggctt tgaaagaggc cgggctgaac atcttccctg 1860
ctgtatactc ccatttttat gtggtcatca caataaggt accccaggtg gagttgaagg 1920
cctatcggca aatggccctg ctgagctctg ccttctcgtt tggctggagc aagtggaaca 1980
tggtctgcaa ttccacaagg gttgtgattc gggtgaggga caactgtca gaagaaacag 2040
agcaccatac ctggtcgctc ctcatgttca gtggtgacag agcgcagatg ctcaagatgc 2100
aggaagagaa cgacaagttc tcggaggccc tcagggaggg caccgagttc cactccacct 2160
tgtaccacat gatgaaggac ttcgcctccc ccgtggcaat ggagagggtc aggcattcga 2220
actgccagtt catcgactca gtgtgctaca tgctgctgtc tatccgcgtc ctcagctatt 2280
cctagctatt cctagcccct acagcgtgtg taagcatggt ggacccttat accgagagga 2340

atcaggtatc tttccagtca gccgctaaag tgatttaaga gcaccaggcg ttccagccac 2400
actgcaaaag gaa   2413

<210> 5
<211> 18
<212> PRT
<213> Mus sp.

<400> 5
Gln Arg Ile Glu Arg Glu Lys Trp Asn Leu Leu Glu Lys Lys Asp Leu
 1   5   10   15

Glu Arg

<210> 6
<211> 18
<212> PRT
<213> Mus sp.

<400> 6
Gln Arg Ile Glu Arg Glu Lys Trp Ser Leu Leu Glu Lys Lys Asp Leu
 1   5   10   15

Glu Arg

<210> 7
<211> 7
<212> PRT
<213> Mus sp.

<400> 7
Val Asn Gly Arg Ala Val Ser
 1   5

<210> 8
<211> 9
<212> PRT
<213> Mus sp.

<400> 8
Phe Val Trp Glu Gly Gln Ser Lys Phe
 1   5

<210> 9
<211> 7
<212> PRT
<213> Mus sp.

<400> 9
Val Asn Gly His Ala Val Ser
 1   5

<210> 10
<211> 9
<212> PRT
<213> Mus sp.

<400> 10
Phe Val Trp Glu Glu Gln Lys Lys Phe
  1   5

<210> 11
<211> 18
<212> PRT
<213> Mus sp.

<400> 11
Gly Arg Asp Tyr Pro Lys Gly Ala Gly Tyr Phe Lys Arg Arg Leu Lys
  1   5   10   15

Asn Val

<210> 12
<211> 18
<212> PRT
<213> Mus sp.

<400> 12
Gly Arg Asp Tyr Pro Lys Gly Ala Asp Tyr Phe Lys Arg Arg Leu Lys
  1   5   10   15

Asn Val

<210> 13
<211> 5
<212> PRT
<213> Mus sp.

<400> 13
Thr Glu Asp Ser Ile
  1   5

<210> 14
<211> 7
<212> PRT
<213> Mus sp.

<400> 14
Gly Ala Gly His Phe Tyr Ser
  1   5

<210> 15
<211> 5
<212> PRT
<213> Mus sp.

<400> 15
Val Glu Arg Thr Arg
 1   5

<210> 16
<211> 5
<212> PRT
<213> Mus sp.

<400> 16
Gly Pro Pro Pro Val
 1   5

<210> 17
<211> 5
<212> PRT
<213> Mus sp.

<400> 17
Thr Glu Gly Ser Ile
 1   5

<210> 18
<211> 7
<212> PRT
<213> Mus sp.

<400> 18
Gly Ala Asp His Leu Tyr Ser
 1   5

<210> 19
<211> 5
<212> PRT
<213> Mus sp.

<400> 19
Val Glu Gly Thr Arg
 1   5

<210> 20
<211> 5
<212> PRT
<213> Mus sp.

<400> 20
Gly Pro Leu Pro Val
 1   5

<210> 21
<211> 730
<212> PRT
<213> Mus sp.

<220>
<221> MOD_RES
<222> (60)
<223> Variable amino acid

<400> 21
```
Met Ala Pro Lys Ser Lys Lys Ala Pro Ser Lys Lys Lys Met Thr Lys
 1               5                  10                  15

Ala Glu Arg Leu Arg Leu Met Gln Glu Glu Glu Arg Arg Leu Lys
            20                  25                  30

Glu Glu Glu Glu Ala Arg Leu Lys Phe Glu Lys Glu Glu Gln Glu Arg
         35                  40                  45

Leu Glu Ile Gln Arg Ile Glu Arg Glu Lys Trp Xaa Leu Leu Glu Lys
    50                  55                  60

Lys Asp Leu Glu Arg Arg Ser Gln Glu Leu Glu Glu Leu Ala Leu Leu
65                  70                  75                  80

Glu Gly Cys Phe Pro Glu Ala Glu Lys Gln Lys Arg Glu Ile Arg Ala
            85                  90                  95

Leu Ala Gln Trp Lys His Tyr Thr Glu Cys Asp Gly Ser Pro Asp Pro
            100                 105                 110

Trp Val Ala Gln Glu Met Asn Thr Phe Ile Ser Leu Trp Glu Glu Glu
         115                 120                 125

Lys Asn Gln Ala Phe Glu Gln Val Met Glu Lys Ser Lys Leu Val Leu
    130                 135                 140

Ser Leu Ile Glu Lys Val Lys Leu Ile Leu Leu Glu Thr Pro Thr Tyr
145                 150                 155                 160

Glu Leu Asp His Arg Thr Val Leu Gln His Gln Gly Ser Ile Leu Arg
                165                 170                 175

Leu Gln Glu Leu Leu Ser Leu Lys Ile Asn Val Ala Thr Glu Leu Leu
            180                 185                 190

Leu Arg Gln Ala Ser Asn Leu Ala Asp Leu Asp Thr Gly Asn Met Glu
            195                 200                 205

Lys Ile Ile Lys Asp Glu Asn Val Thr Leu Tyr Val Trp Ala Asn Leu
    210                 215                 220

Lys Lys Asn Pro Arg His Arg Ser Val Arg Phe Ser Glu Thr Gln Ile
225                 230                 235                 240
```

Gly Phe Glu Ile Pro Arg Ile Leu Ala Thr Ser Asn Val Ala Leu Arg
            245   250   255

Leu Leu His Thr Arg Tyr Asp His Ile Thr Pro Leu Phe Pro Ile Ala
           260   265   270

Val Thr Glu Gln Asn Gln Asn Pro Val Gly Ala Glu Gln Val Asn Val
        275   280   285

Glu Glu Ser Thr Glu Lys Ala Met Thr Glu Glu Lys Leu Phe Thr Glu
        290   295   300

Glu Lys Ala Ala Asn Glu Asp Glu Gln Pro Lys Ala Glu Gln Glu Arg
305   310   315   320

Glu Leu Asn Leu Val Gln Glu Glu Asn Lys Tyr Glu Ala Ile Glu Asn
           325   330   335

Thr Val Leu Gln Arg Thr Ser Asp Ser Glu Gly Glu Asp Ser Gln Thr
          340   345   350

Thr Gln Leu Glu Leu Glu Met Lys Leu Leu Ser Glu Ala Val Leu Ala
         355   360   365

Ala Gln Leu Gln Leu Val Glu Asn Val Val Glu Leu Pro Glu Ala Ser
     370   375   380

Gln Ala Tyr Lys Val Asp Leu Cys His Phe Ser Thr Leu Gly Gly Val
385   390   395   400

Tyr His Leu Asp Val Leu Glu Leu Pro Pro Gln Cys Lys Pro Val Lys
           405   410   415

Gly Trp Val Leu Val Glu Ile Leu Gln Glu Gly Leu Gln Arg Phe Ile
           420   425   430

Tyr Pro Pro Asp Thr Thr Glu Glu Pro Asp Pro Asp Val Thr Phe Pro
         435   440   445

Pro Ile Glu Val Thr Leu Glu Ile His Lys Ser Val Ile Phe Phe Glu
      450   455   460

Arg Pro Arg Val Val Arg Trp Asp Asn Glu Gly Lys Phe Trp Arg Ser
465   470   475   480

Asp Gly Ile Ser Ser Val Tyr Tyr Asn Arg Glu Asp Arg Leu Leu Thr
          485   490   495

Phe Ser Met Asp Thr Leu Gly Pro Val Thr Leu Ile Gln Asp Ala His
         500   505   510

Val Asn Met Pro Tyr Gln Ser Trp Glu Met Ser Pro Gln Gly Met Asn
        515   520   525

Lys Val Leu Leu Ile Val Lys Thr Val Phe Met Glu Leu Gln Ile Tyr
        530   535   540

```
Ile Lys Glu Asn Leu Cys Met Leu Ala Ser Val Lys Leu Arg Gly Lys
545                 550             555                 560

Gly Leu Glu Phe His Leu Lys Gly Lys Trp Met Ala Pro Ile Pro Phe
                565             570                 575

Ile Leu Ala Leu Lys Glu Ala Gly Leu Asn Ile Phe Pro Ala Val Tyr
                580             585                 590

Ser His Phe Tyr Val Val Ile Asn Asn Lys Val Pro Gln Val Glu Leu
                595             600                 605

Lys Ala Tyr Arg Gln Met Ala Leu Leu Ser Ser Ala Phe Ser Phe Gly
        610             615             620

Trp Ser Lys Trp Asn Met Val Cys Asn Ser Thr Arg Val Val Ile Arg
625             630             635                 640

Val Arg Glu Gln Leu Ser Glu Glu Thr Glu His His Thr Trp Ser Leu
                645             650                 655

Leu Met Phe Ser Gly Asp Arg Ala Gln Met Leu Lys Met Gln Glu Glu
            660             665             670

Asn Asp Lys Phe Ser Glu Ala Leu Arg Glu Gly Thr Glu Phe His Ser
        675             680             685

Thr Leu Tyr His Met Met Lys Asp Phe Ala Ser Pro Val Ala Met Glu
        690             695             700

Arg Val Arg His Ser Asn Cys Gln Phe Ile Asp Ser Val Cys Tyr Met
705             710             715                 720

Leu Leu Ser Ile Arg Val Leu Ser Tyr Ser
                725             730
```

<210> 22
<211> 716
<212> PRT
<213> Homo sapiens

<220>
<221> MOD_RES
<222> (185)
<223> Variable amino acid

<400> 22
```
Met Ser Gly Ser Lys Lys Lys Val Thr Lys Ala Glu Arg Leu Lys
  1             5                 10                  15

Leu Leu Gln Glu Glu Glu Glu Arg Arg Leu Lys Glu Glu Glu Glu Ala
            20                  25                  30

Arg Leu Lys Tyr Glu Lys Glu Glu Met Glu Arg Leu Glu Ile Gln Arg
            35                  40                  45
```

Ile Glu Lys Glu Lys Trp His Arg Leu Glu Ala Lys Asp Leu Glu Arg
    50   55   60

Arg Asn Glu Glu Leu Glu Glu Leu Tyr Leu Leu Glu Arg Cys Phe Pro
65   70   75   80

Glu Ala Glu Lys Leu Lys Gln Glu Thr Lys Leu Leu Ser Gln Trp Lys
            85   90   95

His Tyr Ile Gln Cys Asp Gly Ser Pro Asp Pro Ser Val Ala Gln Glu
        100   105   110

Met Asn Thr Phe Ile Ser Leu Trp Lys Glu Lys Thr Asn Glu Thr Phe
        115   120   125

Glu Glu Val Ile Glu Lys Ser Lys Val Val Leu Asn Leu Ile Glu Lys
    130   135   140

Leu Lys Phe Ile Leu Leu Glu Thr Pro Pro Cys Asp Leu Gln Asp Lys
145   150   155   160

Asn Ile Ile Gln Tyr Gln Glu Ser Ile Leu Gln Leu Gln Glu Leu Leu
            165   170   175

His Leu Lys Phe Gly Val Ala Thr Xaa Ile Leu Leu Lys Gln Ala Ser
        180   185   190

Thr Leu Ala Asp Leu Asp Ser Gly Asn Met Glu Lys Val Ile Lys Asp
        195   200   205

Glu Asn Val Thr Leu Tyr Val Trp Ala Asn Leu Lys Lys Asn Pro Arg
    210   215   220

His Arg Ser Val Arg Phe Ser Glu Thr Gln Ile Gly Phe Glu Ile Pro
225   230   235   240

Arg Ile Leu Ala Thr Ser Asp Ile Ala Val Arg Leu Leu His Thr His
        245   250   255

Tyr Asp His Val Ser Ala Leu His Pro Val Ser Thr Pro Ser Lys Glu
        260   265   270

Tyr Thr Ser Ala Val Thr Glu Leu Val Lys Asp Asp Val Lys Asn Val
        275   280   285

Glu Lys Ala Ile Ser Lys Glu Val Glu Glu Glu Ser Lys Gln Gln Glu
    290   295   300

Arg Gly Ser His Leu Ile Gln Glu Glu Glu Ile Lys Val Glu Glu Glu
305   310   315   320

Gln Gly Asp Ile Glu Val Lys Met Ser Ser Ala Glu Glu Glu Ser Glu
        325   330   335

Ala Ile Lys Cys Glu Arg Glu Met Lys Val Leu Ser Glu Thr Val Ser
        340   345   350

Ala Ala Gln Leu Leu Leu Val Glu Asn Ser Ser Glu Lys Pro Asp Phe
      355   360   365

Phe Glu Asp Asn Val Val Asp Leu Cys Gln Phe Thr Thr Leu Gly Gly
      370   375   380

Val Tyr His Leu Asp Ile Leu Glu Leu Pro Pro Gln Cys Lys Pro Val
385   390   395   400

Lys Gly Trp Met Ile Val Glu Ile Leu Lys Glu Gly Leu Gln Lys Tyr
          405   410   415

Thr Tyr Pro Pro Glu Thr Thr Glu Glu Phe Glu Thr Glu Asn Ala Phe
          420   425   430

Pro Pro Ile Glu Val Thr Leu Glu Val His Glu Asn Val Ile Phe Phe
          435   440   445

Glu Asp Pro Val Val Val Arg Trp Asp Ala Glu Gly Lys His Trp Arg
      450   455   460

Thr Asp Gly Ile Ser Asn Val Ser Tyr Lys Pro Lys Glu Arg Leu Val
465   470   475   480

Thr Phe Ser Leu Asp Thr Phe Gly Pro Val Thr Leu Ile Gln Asp Ala
          485   490   495

His Ile Asn Met Pro Tyr Gln Ser Trp Glu Leu Arg Pro Leu Asp Val
          500   505   510

Asn Lys Val Leu Leu Thr Val Thr Thr Val Phe Thr Glu Ile Gln Ile
          515   520   525

Gln Ile Lys Glu Asn Leu Cys Met Leu Ser Ser Ile Lys Leu Lys Asp
      530   535   540

Lys Lys His Ile Ser Ile Leu Glu Gly Thr Trp Met Thr Pro Ile Pro
545   550   555   560

Phe Ile Ile Ala Leu Lys Glu Ala Gly Leu Asn Ile Phe Pro Thr Arg
          565   570   575

His Ser His Phe Tyr Val Ile Ile Asn Asn Lys Val Pro Leu Val Glu
          580   585   590

Val Lys Ala Tyr Arg Gln Met Ala Leu Leu Ser Ser Ala Phe Ala Phe
          595   600   605

Gly Trp Ser Lys Trp Asn Leu Leu Cys Asn Ser Thr Lys Val Val Phe
      610   615   620

Lys Val Arg Glu His Leu Thr Glu Glu Cys Thr Glu Asn Pro Asn Trp
625   630   635   640

Ala Leu Leu Met Phe Ser Gly Asp Arg Ala Gln Arg Leu Lys Ile Lys
          645   650   655

Glu Glu Ser Glu Ala Phe Ser Glu Ala Leu Lys Glu Glu Thr Glu Phe
       660   665   670

His Ser Thr Leu Tyr His Met Val Lys Asp Phe Ala Ser Glu Glu Ala
       675   680   685

Met Glu Lys Val Arg Ser Ser Asn Cys Gln Phe Val Asn Ser Val Cys
   690   695   700

His Met Leu Leu Ser Thr Arg Leu Leu Ser Tyr Ser
705   710   715

<210> 23
<211> 737
<212> PRT
<213> Ciona intestinalis

<400> 23
Met Pro Pro Lys Ser Pro Asn Arg Ser Gly Lys Ser Thr Pro Thr Arg
  1   5   10   15

Gly Arg Pro Gly Glu Lys Lys Asp Glu Glu Lys Leu Leu Gln Asp Glu
       20   25   30

Glu Glu Glu Arg Leu Arg Leu Glu Gln Glu Glu Lys Ala Arg Gln Glu
      35   40   45

Lys Glu Ala Arg Glu Lys Leu Glu Gln Glu Arg Arg Ala Glu Leu Asp
   50   55   60

Thr Lys Lys Asp Lys Gln Val Phe Glu Thr Asn Ile Glu Leu Gly Ala
65   70   75   80

Val Lys Leu Glu Val Glu Gln Val Lys Asn Asp Lys Leu Ala His Ala
         85   90   95

Glu Trp Asn Arg Tyr Met Lys Cys Asp Gly Lys Pro Asp Pro Thr Ser
       100   105   110

Val Lys Glu Ile Asn Thr Phe Ile Ser Leu Ser His Glu Lys Gly Ser
      115   120   125

Pro Asp Val Asn Ile Val Leu Glu Asp Ala Lys Leu Ile Leu Ser Leu
   130   135   140

Ile Ser Asp Leu Asn Glu Leu Leu Glu Asp Phe Thr Pro Glu Glu Phe
145   150   155   160

Glu Gln Lys Val Asp Ser Tyr Arg Gln Thr Ile Leu Ser Leu Gln Asp
         165   170   175

Leu Leu Leu Asn Arg Tyr Asn Glu Ala Thr Leu Lys Met Leu Lys Glu
      180   185   190

Ala Ser Tyr Glu Ala Asp Ser Glu Ser Gly Asn Leu Gln Lys Val Val
      195   200   205

Asp Gly Glu Asn Glu Thr Ile Met Leu Trp Ala Asn Leu Asn Lys Asn
    210   215   220

Pro Arg Phe Lys Leu Phe Glu Phe Glu Asn Glu Lys Ile Ser Phe Glu
225   230   235   240

Leu Pro Lys Val Leu Ala Met Ala Asp Ile Ala Val Arg Ile Leu Arg
            245   250   255

Thr Lys Phe Asp His Tyr Ser His Gln Cys Thr Thr Phe Leu Pro Lys
        260   265   270

Lys Lys Lys Val Lys Asp Glu Glu Pro Ile Pro Glu Glu Pro Pro Lys
        275   280   285

Pro Glu Asp Ala Glu Glu Val Glu Val Lys Gly Asp Glu Glu Asn Gly
    290   295   300

Glu Asp Ala Lys Ser Val Val Glu Glu Gly Arg Gln Ser Lys Gln Ser
305   310   315   320

Asn Glu Pro Gly Leu Val Asn Glu Gly Glu Lys Glu Glu Glu Thr Lys
            325   330   335

Lys Asp Glu Asn Glu Gly Glu Lys Glu Asp Ala Val Lys Thr Pro Asp
            340   345   350

Val Gln Ile Glu Ile Glu Asp Asp Glu Glu Glu Ile Leu Asp Pro Asp
        355   360   365

Val Val Asp Leu Arg Gln Phe Ser Pro Leu Gly Gly Val Tyr His Val
    370   375   380

Asp Leu Leu Lys Thr Pro Pro Gln Pro Asn Ile Val Arg Gly Trp Thr
385   390   395   400

Leu Thr Gln Ile Ile Asp Lys Pro Leu Ser Thr Val Lys Tyr Pro Ser
            405   410   415

Asp Asn Pro Asn Thr Gly Arg Ser Ser Ser Arg Val Ala Ser Ala Asn
            420   425   430

Pro Glu Gly Arg Asp Glu Gly Ser Pro Ser Lys Thr Pro Leu Glu Gln
        435   440   445

Gln Gln Pro Pro Ile Gly Leu Thr Phe Ala Leu Pro Ser Asn Val Met
    450   455   460

Phe Phe Glu Glu Pro Gln Val Ala Ser Trp Asp Ser Ser Asp Lys His
465   470   475   480

Trp Lys Thr Ser Gly Ile Thr Asp Thr Asn Phe Asp Glu Glu Asn Arg
            485   490   495

Lys Leu Leu Phe Lys Thr Gln Glu Phe Gly Thr Phe Cys Leu Met Gln
        500   505   510

Asp Ser His Leu Asn Met Pro Phe Gln Ser Trp Glu Leu Lys Pro Lys
     515   520   525

Gly Thr Asn Ser Thr Val Leu Thr Ile Thr Ala Ala Ile Ala Glu Val
     530   535   540

Glu Ile Glu Val Lys Asp Ser Lys Cys Arg Leu Asn Ala Pro Ala Glu
545   550   555   560

Asp Pro Pro Lys Glu Leu Ser Gly Leu Tyr Gly Lys Trp Met Ala Val
         565   570   575

Pro Lys Leu Ile Ala Ala Met Arg Asp Ala Gly Val Asn Val Phe Pro
         580   585   590

Ala Glu Asp Ser His Lys Phe Val Ser Ile Gln Ser Lys Glu Val Asp
         595   600   605

Leu Glu Arg Val Tyr Glu Gln Met Ala Ile Leu Ser Ser Thr Phe Ala
     610   615   620

Phe Ser Trp Ser Lys Trp Asn Asn Asp Ala Gly Ser Lys Gln Val Ile
625   630   635   640

Ile Gln Ile Ala Pro Cys Leu Ile Lys Glu Asn Val Pro Arg Asp Ala
         645   650   655

Val Ser Asp Asp Asp Trp Ser Ile Phe Ser Val Ser Asp Asp Met Ser
         660   665   670

Tyr Lys Leu Ala Leu Ser Glu Tyr Asp Glu Glu Phe Ala Asp Val Val
         675   680   685

Ala Lys Gly Ala Thr Tyr His Cys Asp Leu Leu His Ala Gln Tyr Glu
     690   695   700

Arg Gln Pro Leu Lys Thr Ala Thr Lys Asn Cys Trp Asn Asn Ser Pro
705   710   715   720

Lys Asn His Lys Thr Arg Thr Ser Phe Ser Phe Thr Arg Leu Pro His
         725   730   735

Tyr

<210> 24
<211> 229
<212> PRT
<213> Rattus sp.

<400> 24
Met Gly Pro Val Thr Leu Ile Gln Asp Ala His Val Asn Met Pro Tyr
  1   5   10   15

Gln Ser Trp Glu Leu Ser Pro Leu Gly Met Asn Lys Ala Leu Leu Met
         20   25   30

```
Val Thr Thr Val Phe Ile Glu Leu Gln Ile His Ile Lys Glu Thr His
        35                      40                  45

Cys Met Leu Ala Ala Val Lys Leu Lys Gly Lys Ser Arg Glu Leu Arg
    50                  55                  60

Val Ile Gly Lys Trp Met Thr Pro Ile Pro Phe Ile Leu Ala Leu Lys
65                  70                  75                      80

Glu Ala Gly Leu Asn Ile Phe Pro Ala Val Tyr Ser His Phe Tyr Val
                85                  90                  95

Val Val Asn Asn Lys Asn Pro Gln Met Glu Leu Lys Ala Tyr Arg Gln
            100                 105                 110

Met Ala Leu Leu Ser Ser Ala Phe Ser Phe Gly Trp Ser Lys Trp Asn
        115                 120                 125

Met Val Cys Asn Ser Thr Arg Val Val Phe Arg Val Arg Glu His Ile
        130                 135                 140

Ser Glu Glu Glu Glu Gln Asn Thr Trp Ala Leu Leu Met Phe Ser Gly
145                 150                 155                 160

Asp Arg Ala Gln Met Leu Lys Met Gln Glu Glu Ser Asp Gln Phe Ser
                165                 170                 175

Glu Thr Leu Arg Glu Gly Ser Glu Phe His Ser Thr Leu Tyr His Met
            180                 185                 190

Met Lys Asp Phe Ala Ser Pro Glu Ala Thr Glu Lys Val Arg His Ser
        195                 200                 205

Asn Cys Gln Phe Ile Asp Ser Val Cys Tyr Met Leu Leu Ser Val Arg
        210                 215                 220

Val Leu Ser Tyr Ser
225
```

<210> 25
<211> 2417
<212> DNA
<213> Homo sapiens

<400> 25
```
tatattggca gttattgagg gtaaagcaat atattgtaac agaatgtata aatattttg    60
ataaaacagt ctatatttta ttaaaaaatg aattataacc cattttcagt tttgcctgca   120
tcataagagt gagcactcca ttgctttctt tcctggccac actgctacaa tccagcacta   180
actatccatg tccagggtaa ggatcgagat cgagaagccc acactgccag tgaaaaagct   240
acgtctttac tgcataaatt agaggaagca atttcggaac aacggaacct tcaaactata   300
aatactgaat tatcgaacac ttgccaggca cttcagcaga agacaaggaa actgaagaag   360
cttttagat gaggaatttc ctcactatga ttccctgtcc tgcgcagatg caattcaaca   420
acctcttcaa gaaaaattga agcagtgttg ccacaaacta tatggtggtc aagaagcaag   480
aatacatcag acacccctga ccttgaaaca tacgtgctgg tacacacctc tgctggatgc   540
cttatctctg gatagtttta cagcagttcc aaccctggaa tcaacacctt tctcaggtgt   600
agccaaccaa atccacactc tgtgtgaaag gcccacatat ggagaagtaa aggatggtgc   660
tttggatgta aaaagacaac acaagtgccc aggccccaca agtggcccca gcccaggaac   720
```

```
gaatctctca ggctgcatca ggatgaatga tgacccaagt atggaagaga atggtgttga 780
acgcgtgtgt cctgagagcc tgctgcagtc caggggatat tcctcactac cattacccag 840
acacacttca tcgacagacg gtactataac ttcaagtgat cctggattag aaattctgaa 900
tatggcttct tgtgaccttg acagaaactc gctctgtaag aaagaggagg atacaagatc 960
agcttctccc acgatagagg cccaaggcac aagtccagct catgataata ttgcattcca 1020
agactctacg agtaaggata aaaccatatt aaatctggaa gccaaagagg aaccagaaac 1080
aatagaagaa cataaaaaag aacatgcttc aggagactct gtggtttccc ctcttcctgt 1140
aaccactgtg aaatcggtta acgttagaca aagtgagaac acttctgcta atgagaagga 1200
ggtggaggca gaatttctca gattatcttt gggatttaag tgtgactggt ttaccttgga 1260
gaagagagtg aagcttgaag agaggtcccg tgactgggca gaagaaaatt tgaagaaaga 1320
aatcactaac tctttaaaac tattagagtc tttaacacct ctgtgtgaag atgacaacca 1380
ggcacaggaa atcattaaga agctggagaa gagtataaag tttcttagcc agtgtgcagc 1440
acgagtggcc agtagggctg agatgttggg agccatcaat caggaaagcc gggttagtaa 1500
agcagttgaa gtgatgattc agcacgtaga aaacttgaag aggatgtatg ccaaagagca 1560
cgctgaatta gaagaactga aacaggttct tctgcagaat gaaaggtctt tcaatcctct 1620
tgaagatgat gatgactgcc aaaattaaaa acgttcagct tctctaaact ccaagccatc 1680
ttctctacga agagtgacta ttgcctcttt acccagaaat attggaaatg caggaatggt 1740
ggctgggatg gaaaataatg atcgattcag tagaaggtca agcagttggc gtattttggg 1800
gtcaaagcag agtgaacacc gtccctcatt acctcgattt attagcacct attcctgggc 1860
agatgctgaa gaagaaaaat gtgaactaaa aactaaagat gactcagagc catctggaga 1920
agaaacagta gaaaggacaa ggaagccaag tctttctgaa aagaaaaata tccatcaaa 1980
gtgggatgtc tcttcagttt atgacacaat agcttcctgg gcaacaaatc tcaagtcctc 2040
catcagaaag gctaataagg ccctctggct ctctattgca ttcattgtac tgtttgcagc 2100
tttgatgagc ttcctcacag gccaattatt ccagaagtct gtggatgccg ctcccacaca 2160
gcaagaggac tcatggacgt ctctagaaca tatcttgtgg ccatttacca gactccgaca 2220
caatgggcca ccaccagtgt gacagcagga catcctaata tatggatctt gatttttaag 2280
tttcagtatc tgaacttcgt aaaattagtaa cttttagctg ggaaagtata gcatgaaacc 2340
agaggttctc agaatgaccg taagatagct tacatttcct cttttttgcct ttatctcccc 2400
aactaaaata caatggg                                              2417
```

<210> 26
<211> 2263
<212> DNA
<213> Mus sp.

<400> 26
```
aagaggtaat cctgggcctg ctgcgcccgc ccgtgcaaac agaattgcag aagttgagcc 60
tacgcttatc atttccgtga gaagaaaagc atatttccag tttcctgtgc ctaagaacaa 120
gcatccagcg cccttcccgc ggctcaaacc caggctgacc tgtgcatatg ggtcaggggg 180
atcaggatgg ggcctgcgca tgaggcaagc ctctgctaca gaactagag gaagcgattc 240
cagaaggaga tcacagtccc cagcactact cagactcagg agctgaagac caggggcgtt 300
cagtatgcct gtgtcttgac ggcctcacag caattccaag gctagaactg acacccatct 360
catgtgccag aaaactcagcc catgctctgt gtaaaaggtc ccccagagca ggaaccagaa 420
gatggggctt tggacgtgac aagagggtgc cagtgcccac tccccacgga aggctccatc 480
ttgggacagg agcttctaga ctgtaccaga atgaacgagg accagagtac agacgagaat 540
ggtgctgacc acttgtattc cgagagcccg tcacagctca gggagtatct cacacagcca 600
tcgtctgaac agacttcatc ctcggagagc actgtgacgt caagtgagtc tggatcagac 660
attttgcaca tggcttctgg tgaccttgac tgcaaacctc tctgtgagaa ggaggaggaa 720
gcaagagccg cctctgccat gcaaggcacc agcctagctc ctgctgctta tggagactac 780
acgagtgtgg gcgtggccaa ggctgcatcc cagctggaag caggagagga actcagaacc 840
acagaaacg gagggaaggg cagtgccccg ggagagacgg agatttccat gccccccaaa 900
gcatctgtga agctcgttaa ctttcagcag agtgaaaaca cttcagctaa tgagaaggaa 960
gtgggggcag agttcctcag gttatctttg ggacttaagt gtgactggtt acattggag 1020
aagagggtga agcttgaaga gaggtcccgg gacctggcag aggaaaattt gaagaaagaa 1080
atcacaaact gtttaaagct tttagagtcg ctgactcccc tgtgtgaaga ggacaaccag 1140
gctcaggaaa tcgttaagaa gctggagaag agtatagtac tgctcagcca gtgcacagcc 1200
cgagtggcca gcagggctga gatgctgggc gccatcaacc aggaaagccg ggtgagtaga 1260
```

```
gcggtggagg tgatgatcca gcacgtggag aacctgaagc ggatgtacgc caaagagcac 1320
gcagagctgg aggatctgaa gcaagcactg ctgcagaacg acaggtcttt taactctctg 1380
ccagatgaag atgactgtca gattaaaaag cgttcatctt ctctaaattc caagccatct 1440
tctcttcgaa gagtgaccat tgcctctttg cccaggaatc ttggaaatgt ggggctggtg 1500
tcaggcatgg aaaataatga cagattcagc cggcggtcga gcagctggag aatcctgggg 1560
acaaagcagg gtgagcaccg cccctcgctg catcgcttca tcagcaccta ttcctgggcc 1620
gacgctgagg acgagagaag tgacgtgaaa gccagagacg ccccagaacc acaaggcgaa 1680
gaggcagtgg aggggaccag gaagcccagc ctttctgaga ggagaagtag cacattggcc 1740
tgggacaggg gcacaatctg cagctcagtg gcttcctggg tcactcacct gcaggcgtcc 1800
ttcagaagag ccaacagagc actctggctc acggggctca tcatcatact gatcgcagcg 1860
ctgatgagct tcctcacagg tcagctcttc cagacagccg tggaggctgc gcccacacag 1920
gaggggggact cctggctgtc tctagaacac atcttatggc catttaccag actcgtgcat 1980
gatggaccac tgccagtgtg actgacgtgc agctcaatgt acccttggat tttaacgttt 2040
ccttctgaga tttgtaaatt ggtaactttt ttttagtaac tatagtgcaa agctagggtc 2100
ctcagcagct gggatctttt tattcccccaa caaaagcaca ggggactaca aaagggaggg 2160
gaccccacct agggtatttt aatgagcttt ctgagtgaga ggcatcagac tttattgaga 2220
tgtatccaaa taaagaccat tcaaatctta aaaaaaaaaa aaa           2263
```

<210> 27
<211> 1155
<212> DNA
<213> Homo sapiens

<400> 27
```
atggattgca gtaacggatc ggcagagtgt accggagaag gaggatcaaa agaggtggtg 60
gggactttta aggctaaaga cctaatagtc acaccagcta ccattttaaa ggaaaaacca 120
gaccccaata atctggtttt tggaactgtg ttcacggatc atatgctgac ggtggagtgg 180
tcctcagagt ttggatggga gaaacctcat atcaagcctc ttcagaacct gtcattgcac 240
cctggctcat cagctttgca ctatgcagtg gaattatttg aaggattgaa ggcatttcga 300
ggagtagata taaaaattcg actgtttcag ccaaacctca acatggatag aatgtatcgc 360
tctgctgtga gggcaactct gccggtattt gacaagaag agctcttaga gtgtattcaa 420
cagcttgtga aattggatca agaatgggtc ccatattcaa catctgctag tctgtatatt 480
cgtcctgcat tcattggaac tgagccttct cttggagtca agaagcctac caaagccctg 540
ctctttgtac tcttgagccc agtgggacct tattttcaa gtggaacctt taatccagtg 600
tccctgtggg ccaatcccaa gtatgtaaga gcctggaaag gtggaactgg ggactgcaag 660
atggggaggga attacggctc atctcttttt gcccaatgtg aagacgtaga taatgggtgt 720
cagcaggtcc tgtggctcta tggcagagac catcagatca ctgaagtggg aactatgaat 780
cttttttcttt actggataaa tgaagatgga gaagaagaac tggcaactcc tccactagat 840
ggcatcattc ttccaggagt gacaaggcgg tgcattctgg acctggcaca tcagtggggt 900
gaatttaagg tgtcagagag ataacctcacc atggatgact tgacaacagc cctggagggg 960
aacagagtga gagagatgtt tagctctggt acagcctgtg ttgtttgccc agtttctgat 1020
atactgtaca aaggcgagac aatacacatt ccaactatgg agaatggtcc taagctggca 1080
agccgcatct tgagcaaatt aactgatatc cagtatggaa gagaagagag cgactggaca 1140
attgtgctat cctga                                             1155
```

<210> 28
<211> 1161
<212> DNA
<213> Mus sp.

<400> 28
```
atgaaggact gcagtaatgg atgctccgcg ccgtttgctg gagaaagagg atcagaagaa 60
gtggcagaga cttttagggc caaagatctc atcatcacac cagccactgt cttaaaagag 120
aagccggacc cggattcgct ggtctttgga gctacgttta ctgaccacat gctgacggtg 180
gagtggtcct ctgcgtctgg atgggagaaa cctcacatta agccttttgg aaacttgccc 240
atacatcccg ctgcctctgt tttgcactac gctgtggaac tgtttgaagg cttgaaagcc 300
```

```
tttcggggag ttgataacaa gatccgattg ttccggccgg acctcaacat ggatagaatg 360
tgccgatctg ctgtgaggac cacgctgccg atgtttgaca aggaggagct cctaaagtgt 420
attcttcagc ttctacagat cgaccaagaa tgggttccct actccacctc tgccagcctc 480
tacatccgcc ccacatttat cggaactgag ccatctcttg gcgtcaagaa gccttccaaa 540
gccctactct ttgtgatcct gagccccgtg ggaccttatt tttctagtgg atcttttact 600
ccggtgtccc tgtgggccaa tccaaagtac atcagagcct ggaaaggtgg gactggagac 660
tgcaagatgg gcggcaatta tggagcctcc cttctggcac agtgcgaggc cgtggagaat 720
ggctgtcagc aggtcctgtg gctgtacggc aaggacaacc agataactga agtaggcaca 780
atgaatcttt tcctctactg gataaacgaa gacggagaag aggagctggc aacgccccca 840
ctagatggca tcattctccc gggagtgacc aggcagagca tcctggagct ggcacaacag 900
tggggtgaat ttaaggtatg tgagagacac ctcaccatgg atgacctggc caccgccctt 960
gaggggaaca gagtgaagga gatgttcggc tcagggacag cctgcgttgt ctgcccagtc 1020
tctgatattc tgtacaaggg ccagatgctg catattccaa cgatggagaa tggccccaag 1080
cttgcaagtc gaatcctggg aaagctgact gatatccagt atggaagggt ggagagtgac 1140
tggacaatcg agctaccctg a                                          1161
```

<210> 29
<211> 5436
<212> DNA
<213> Homo sapiens

<400> 29
```
ggccgcggcg gcggaggcag cagcggcggc ggcagtggcg gcggcgaagg tggcggcggc 60
tcggccagta ctcccggccc ccgccatttc ggactgggag cgagcgcggc gcaggcactg 120
aaggcggcgg cggggccaga ggctcagcgg ctcccaggtg cgggagagag gcctgctgaa 180
aatgactgaa tataaacttg tggtagttgg agctggtggc gtaggcaaga gtgccttgac 240
gatacagcta attcagaatc attttgtgga cgaatatgat ccaacaatag aggattccta 300
caggaagcaa gtagtaattg atggagaaac ctgtctcttg gatattctcg acacagcagg 360
tcaagaggag tacagtgcaa tgagggacca gtacatgagg actggggagg gctttctttg 420
tgtatttgcc ataaataata ctaaatcatt tgaagatatt caccattata gagaacaaat 480
taaaagagtt aaggactctg aagatgtacc tatggtccta gtaggaaata aatgtgattt 540
gccttctaga acagtagaca caaaacaggc tcaggactta gcaagaagtt atggaattcc 600
ttttattgaa acatcagcaa agacaagaca gagagtggag gatgctttatg atacattggt 660
gagggagatc cgacaataca gattgaaaaa aatcagcaaa gaagaaaaga ctcctggctg 720
tgtgaaaatt aaaaaatgca ttataatgta atctgggtgt tgatgatgcc ttctatacat 780
tagttcgaga aattcgaaaa cataaagaaa agatgagcaa agatggtaaa aagaagaaaa 840
agaagtcaaa gacaaagtgt gtaattatgt aaatacaatt tgtactttttt tcttaaggca 900
tactagtaca agtggtaatt tttgtacatt acactaaatt attagcattt gttttagcat 960
tacctaattt ttttcctgct ccatgcagac tgttagcttt taccttaaat gcttatttta 1020
aaatgacagt ggaagttttt ttttcctcta agtgccagta ttcccagagt tttggttttt 1080
gaactagcaa tgcctgtgaa aaagaaactg aatacctaag atttctgtct tggggttttt 1140
ggtgcatgca gttgattact tcttattttt cttaccaatt gtgaatgttg gtgtgaaaca 1200
aattaatgaa gcttttgaat catccctatt ctgtgtttta tctagtcaca taaatggatt 1260
aattactaat ttcagttgag accttctaat tggttttttac tgaaacattg agggaacaca 1320
aatttatggg cttcctgatg atgattcttc taggcatcat gtcctatagt ttgtcatccc 1380
tgatgaatgt aaagttacac tgttcacaaa ggttttgtct cctttccact gctattagtc 1440
atggtcactc tccccaaaat attatatttt ttctataaaa agaaaaaaat ggaaaaaaat 1500
tacaaggcaa tggaaactat tataaggcca tttccttttc acattagata aattactata 1560
aagactccta atagcttttc ctgttaaggc agacccagta tgaaatgggg attattatag 1620
caaccatttt ggggctatat ttacatgcta ctaaattttt ataataattg aaaagatttt 1680
aacaagtata aaaaattctc ataggaatta aatgtagtct ccctgtgtca gactgctctt 1740
tcatagtata actttaaatc ttttcttcaa cttgagtctt tgaagatagt tttaattctg 1800
cttgtgacat taaaagatta tttgggccag ttatagctta ttaggtgttg aagagaccaa 1860
ggttgcaagg ccaggccctg tgtgaacctt tgagctttca tagagagttt cacagcatgg 1920
actgtgtccc cacggtcatc cagtgttgtc atgcattggt tagtcaaaat ggggagggac 1980
tagggcagtt tggatagctc aacaagatac aatctcactc tgtggtggtc ctgctgacaa 2040
atcaagagca ttgcttttgt ttcttaagaa aacaaactct tttttaaaaa ttacttttaa 2100
```

```
atattaactc aaaagttgag attttggggt ggtggtgtgc caagacatta attttttttt 2160
taaacaatga agtgaaaaag ttttacaatc tctaggtttg gctagttctc ttaacactgg 2220
ttaaattaac attgcataaa cacttttcaa gtctgatcca tatttaataa tgctttaaaa 2280
taaaaataaa aacaatcctt ttgataaatt taaaatgtta cttatttaa aataaatgaa 2340
gtgagatggc atggtgaggt gaaagtatca ctggactagg aagaaggtga cttaggttct 2400
agataggtgt cttttaggac tctgattttg aggacatcac ttactatcca tttcttcatg 2460
ttaaaagaag tcatctcaaa ctcttagttt ttttttttta caactatgta atttatattc 2520
catttacata aggatacact tatttgtcaa gctcagcaca atctgtaaat ttttaaccta 2580
tgttacacca tcttcagtgc cagtcttggg caaaattgtg caagaggtga agtttatatt 2640
tgaatatcca ttctcgtttt aggactcttc ttccatatta gtgtcatctt gcctccctac 2700
cttccacatg ccccatgact tgatgcagtt ttaatacttg taattcccct aaccataaga 2760
tttactgctg ctgtggatat ctccatgaag ttttcccact gagtcacatc agaaatgccc 2820
tacatcttat ttcctcaggg ctcaagagaa tctgacagat accataaagg gatttgacct 2880
aatcactaat tttcaggtgg tggctgatgc tttgaacatc tctttgctgc ccaatccatt 2940
agcgacagta ggattttttca aacctggtat gaatagacag aaccctatcc agtggaagga 3000
gaatttaata aagatagtgc tgaaagaatt ccttaggtaa tctataacta ggactactcc 3060
tggtaacagt aatacattcc attgtttag taaccagaaa tcttcatgca atgaaaaata 3120
ctttaattca tgaagcttac tttttttttt tggtgtcaga gtctcgctct tgtcacccag 3180
gctggaatgc agtggcgcca tctcagctca ctgcaacctc catctcccag gttcaagcga 3240
ttctcgtgcc tcggcctcct gagtagctgg gattacaggc gtgtgccact acactcaact 3300
aatttttgta tttttaggag agacgggggtt tcaccctgtt ggccaggctg gtctcgaact 3360
cctgacctca agtgattcac ccaccttggc ctcataaacc tgttttgcag aactcattta 3420
ttcagcaaat atttattgag tgcctaccag atgccagtca ccgcacaagg cactgggtat 3480
atggtatccc caaacaagag acataatccc ggtccttagg tagtgctagt gtggtctgta 3540
atatcttact aaggcctttg gtatacgacc cagagataac acgatgcgta ttttagtttt 3600
gcaaagaagg ggtttggtct ctgtgccagc tctataattg ttttgctacg attccactga 3660
aactcttcga tcaagctact ttatgtaaat cacttcattg ttttaaagga ataaacttga 3720
ttatattgtt tttttatttg gcataactgt gattctttta ggacaattac tgtacacatt 3780
aaggtgtatg tcagatattc atattgaccc aaatgtgtaa tattccagtt ttctctgcat 3840
aagtaattaa aatatactta aaaattaata gttttatctg ggtacaaata aacaggtgcc 3900
tgaactagtt cacagacaag gaaacttcta tgtaaaaatc actatgattt ctgaattgct 3960
atgtgaaact acagatcttt ggaacactgt ttaggtaggg tgttaagact tacacagtac 4020
ctcgtttcta cacagagaaa gaaatggcca tacttcagga actgcagtgc ttatgagggg 4080
atatttaggc ctcttgaatt tttgatgtag atgggcattt ttttaaggta gtggttaatt 4140
acctttatgt gaactttgaa tggtttaaca aaagatttgt ttttgtagag attttaaagg 4200
gggagaattc tagaaataaa tgttacctaa ttattacagc cttaaagaca aaaatccttg 4260
ttgaagtttt tttaaaaaaa gctaaaattac atagacttag gcattaacat gtttgtggaa 4320
gaatatagca gacgtatatt gtatcatttg agtgaatgtt cccaagtagg cattctaggc 4380
tctatttaac tgagtcacac tgcataggaa tttagaacct aactttata ggttatcaaa 4440
actgttgtca ccattgcaca attttgtcct aatatataca tagaaacttt gtggggcatg 4500
ttaagttaca gtttgcacaa gttcatctca tttgtattcc attgattttt tttttcttct 4560
aaacatttt tcttcaaaca gtatataact ttttttaggg gatttttttt tagacagcaa 4620
aaactatctg aagatttcca tttgtcaaaa agtaatgatt tcttgataat tgtgtagtaa 4680
tgtttttag aacccagcag ttaccttaaa gctgaattta tatttagtaa cttctgtgtt 4740
aatactggat agcatgaatt ctgcattgag aaactgaata gctgtcataa aatgaaactt 4800
tctttctaaa gaaagatact cacatgagtt cttgaagaat agtcataact agattaagat 4860
ctgtgtttta gtttaatagt ttgaagtgcc tgtttgggat aatgataggt aatttagatg 4920
aatttagggg aaaaaaaagt tatctgcaga tatgttgagg gcccatctct cccccacac 4980
ccccacagag ctaactgggt tacagtgttt tatccgaaag tttccaattc cactgtcttg 5040
tgttttcatg ttgaaaatac ttttgcattt ttcctttgag tgccaatttc ttactagtac 5100
tatttcttaa tgtaacatgt ttacctggaa tgtatttaa ctattttgt atagtgtaaa 5160
ctgaaacatg cacatttgt acattgtgct ttcttttgtg ggacatatgc agtgtgatcc 5220
agttgttttc catcatttgg ttgcgctgac ctaggaatgt tggtcatatc aaacattaaa 5280
aatgaccact cttttaattg aaattaactt ttaaatgttt ataggagtat gtgctgtgaa 5340
gtgatctaaa atttgtaata tttttgtcat gaactgtact actcctaatt attgtaatgt 5400
aataaaaata gttacagtga caaaaaaaaa aaaaaa                            5436
```

<210> 30
<211> 5312
<212> DNA
<213> Homo sapiens

<400> 30
ggccgcggcg gcggaggcag cagcggcggc ggcagtggcg gcggcgaagg tggcggcggc 60
tcggccagta ctcccggccc ccgccatttc ggactgggag cgagcgcggc gcaggcactg 120
aaggcggcgg cggggccaga ggctcagcgg ctcccaggtg cgggagagag gcctgctgaa 180
aatgactgaa tataaacttg tggtagttgg agctggtggc gtaggcaaga gtgccttgac 240
gatacagcta attcagaatc attttgtgga cgaatatgat ccaacaatag aggattccta 300
caggaagcaa gtagtaattg atggagaaac ctgtctcttg gatattctcg acacagcagg 360
tcaagaggag tacagtgcaa tgagggacca gtacatgagg actggggagg gctttctttg 420
tgtatttgcc ataaataata ctaaatcatt tgaagatatt caccattata gagaacaaat 480
taaaagagtt aaggactctg aagatgtacc tatggtccta gtaggaaata aatgtgattt 540
gccttctaga acagtagaca caaaacaggc tcaggactta gcaagaagtt atggaattcc 600
ttttattgaa acatcagcaa agacaagaca gggtgttgat gatgccttct atacattagt 660
tcgagaaatt cgaaaacata aagaaaagat gagcaaagat ggtaaaaaga agaaaaagaa 720
gtcaaagaca aagtgtgtaa ttatgtaaat acaatttgta cttttttctt aaggcatact 780
agtacaagtg gtaattttg tacattacac taaattatta gcatttgttt tagcattacc 840
taatttttt cctgctccat gcagactgtt agcttttacc ttaaatgctt attttaaaat 900
gacagtggaa gtttttttt cctctaagtg ccagtattcc cagagtttg gttttgaac 960
tagcaatgcc tgtgaaaaag aaactgaata cctaagattt ctgtcttggg gttttggtg 1020
catgcagttg attacttctt attttctta ccaattgtga atgttggtgt gaaacaaatt 1080
aatgaagctt ttgaatcatc cctattctgt gttttatcta gtcacataaa tggattaatt 1140
actaatttca gttgagacct tctaattggt ttttactgaa acattgaggg aacacaaatt 1200
tatgggcttc ctgatgatga ttcttctagg catcatgtcc tatagtttgt catccctgat 1260
gaatgtaaag ttacactgtt cacaaaggtt ttgtctcctt tccactgcta ttagtcatgg 1320
tcactctccc caaaatatta tattttttct ataaaaagaa aaaatggaa aaaattaca 1380
aggcaatgga aactattata aggccatttc cttttcacat tagataaatt actataaaga 1440
ctcctaatag cttttcctgt taaggcagac ccagtatgaa atggggatta ttatagcaac 1500
cattttgggg ctatatttac atgctactaa atttttataa taattgaaaa gattttaaca 1560
agtataaaaa attccatag gaattaaatg tagtctccct gtgtcagact gctctttcat 1620
agtataactt taaatctttt cttcaacttg agtctttgaa gatagtttta attctgcttg 1680
tgacattaaa agattatttg ggccagttat agcttattag gtgttgaaga gaccaaggtt 1740
gcaaggccag gccctgtgtg aacctttgag ctttcataga gagtttcaca gcatggactg 1800
tgtccccacg gtcatccagt gttgtcatgc attggttagt caaaatgggg agggactagg 1860
gcagtttgga tagctcaaca agatacaatc tcactctgtg gtggtcctgc tgacaaatca 1920
agagcattgc ttttgtttct taagaaaaca aactcttttt taaaaattac ttttaaatat 1980
taactcaaaa gttgagattt tggggtggtg gtgtgccaag acattaattt ttttttttaaa 2040
caatgaagtg aaaaagtttt acaatctcta ggtttggcta gttctcttaa cactggttaa 2100
attaacattg cataaacact tttcaagtct gatccatatt taataatgct ttaaaataaa 2160
aataaaaaca atcctttga taaatttaaa atgttactta ttttaaaata aatgaagtga 2220
gatggcatgg tgaggtgaaa gtatcactgg actaggaaga aggtgactta ggttctagat 2280
aggtgtcttt taggactctg attttgagga catcacttac tatccatttc ttcatgttaa 2340
aagaagtcat ctcaaactct tagttttttt ttttacaac tatgtaattt atattccatt 2400
tacataagga tacacttatt tgtcaagctc agcacaatct gtaaatttt aacctatgtt 2460
acaccatctt cagtgccagt cttgggcaaa attgtgcaag aggtgaagtt tatatttgaa 2520
tatccattct cgttttagga ctcttcttcc atattagtgt catcttgcct ccctaccttc 2580
cacatgcccc atgacttgat gcagtttttaa tacttgtaat tcccctaacc ataagattta 2640
ctgctgctgt ggatatctcc atgaagtttt cccactgagt cacatcagaa atgccctaca 2700
tcttatttcc tcagggctca agagaatctg acagatacca taaagggatt tgacctaatc 2760
actaattttc aggtggtggc tgatgctttg aacatctctt tgctgcccaa tccattagcg 2820
acagtaggat ttttcaaacc tggtatgaat agacagaacc ctatccagtg gaaggagaat 2880
ttaataaaga tagtgctgaa agaattcctt aggtaatcta taactaggac tactcctggt 2940
aacagtaata cattccattg tttttagtaac cagaaatctt catgcaatga aaaatacttt 3000
aattcatgaa gcttactttt tttttttggt gtcagagtct cgctcttgtc acccaggctg 3060
gaatgcagtg gcgccatctc agctcactgc aacctccatc tcccaggttc aagcgattct 3120

```
cgtgcctcgg cctcctgagt agctgggatt acaggcgtgt gccactacac tcaactaatt 3180
tttgtatttt taggagagac ggggtttcac cctgttggcc aggctggtct cgaactcctg 3240
acctcaagtg attcacccac cttggcctca taaacctgtt ttgcagaact catttattca 3300
gcaaatattt attgagtgcc taccagatgc cagtcaccgc acaaggcact gggtatatgg 3360
tatccccaaa caagagacat aatcccggtc cttaggtagt gctagtgtgg tctgtaatat 3420
cttactaagg cctttggtat acgacccaga gataacacga tgcgtatttt agttttgcaa 3480
agaaggggtt tggtctctgt gccagctcta taattgtttt gctacgattc cactgaaact 3540
cttcgatcaa gctactttat gtaaatcact tcattgtttt aaaggaataa acttgattat 3600
attgtttttt tatttggcat aactgtgatt cttttaggac aattactgta cacattaagg 3660
tgtatgtcag atattcatat tgacccaaat gtgtaatatt ccagttttct ctgcataagt 3720
aattaaaata tacttaaaaa ttaatagttt tatctgggta caaataaaca ggtgcctgaa 3780
ctagttcaca gacaaggaaa cttctatgta aaaatcacta tgatttctga attgctatgt 3840
gaaactacag atctttggaa cactgtttag gtagggtgtt aagacttaca cagtacctcg 3900
tttctacaca gagaaagaaa tggccatact tcaggaactg cagtgcttat gaggggatat 3960
ttaggcctct tgaatttttg atgtagatgg gcattttttt aaggtagtgg ttaattacct 4020
ttatgtgaac tttgaatggt ttaacaaaag atttgttttt gtagagattt taaaggggga 4080
gaattctaga aataaatgtt acctaattat tacagcctta aagacaaaaa tccttgttga 4140
agtttttta aaaaaagcta aattacatag acttaggcat taacatgttt gtggaagaat 4200
atagcagacg tatattgtat catttgagtg aatgttccca agtaggcatt ctaggctcta 4260
tttaactgag tcacactgca taggaattta gaacctaact tttataggtt atcaaaactg 4320
ttgtcaccat tgcacaattt tgtcctaata tatacataga aactttgtgg ggcatgttaa 4380
gttacagttt gcacaagttc atctcatttg tattccattg attttttttt tcttctaaac 4440
attttttctt caaacagtat ataacttttt ttaggggatt ttttttttaga cagcaaaaac 4500
tatctgaaga tttccatttg tcaaaaagta atgatttctt gataattgtg tagtaatgtt 4560
ttttagaacc cagcagttac cttaaagctg aatttatatt tagtaacttc tgtgttaata 4620
ctggatagca tgaattctgc attgagaaac tgaatagctg tcataaaatg aaactttctt 4680
tctaaagaaa gatactcaca tgagttcttg aagaatagtc ataactagat taagatctgt 4740
gttttagttt aatagtttga agtgcctgtt tgggataatg ataggtaatt tagatgaatt 4800
taggggaaaa aaaagttatc tgcagatatg ttgagggccc atctctcccc ccacaccccc 4860
acagagctaa ctgggttaca gtgtttttatc cgaaagtttc caattccact gtcttgtgtt 4920
ttcatgttga aaatactttt gcattttttcc tttgagtgcc aatttcttac tagtactatt 4980
tcttaatgta acatgtttac ctggaatgta ttttaactat ttttgtatag tgtaaactga 5040
aacatgcaca ttttgtacat tgtgctttct tttgtgggac atatgcagtg tgatccagtt 5100
gtttttccatc atttggttgc gctgacctag gaatgttggt catatcaaac attaaaaatg 5160
accactcttt taattgaaat taactttttaa atgtttatag gagtatgtgc tgtgaagtga 5220
tctaaaattt gtaatatttt tgtcatgaac tgtactactc ctaattattg taatgtaata 5280
aaaatagtta cagtgacaaa aaaaaaaaaa aa                            5312
```

```
<210> 31
<211> 570
<212> DNA
<213> Mus sp.
```

```
<400> 31
atgactgagt ataaacttgt ggtggttgga gctggtggcg taggcaagag cgccttgacg 60
atacagctaa ttcagaatca ctttgtggat gagtatgacc ctacgataga ggactcctac 120
aggaaacaag tagtaattga tggagaaacc tgtctcttgg atattctcga cacagcaggt 180
caagaggagt acagtgcaat gagggaccag tacatgagaa ctggggaggg ctttctttgt 240
gtatttgcca taaataatac taaatcattt gaagatattc accattatag agaacaaatt 300
aaaagagtaa aggactctga agatgtgcct atggtcctgg tagggaataa gtgtgatttg 360
ccttctagaa cagtagacac gaaacaggct caggagttag caaggagtta cgggattccg 420
ttcattgaga cctcagcaaa gacaagacag agagtggagg atgcttttta tacattggtg 480
agagagatcc gacagtacag attgaaaaaa atcagcaaag aagaaaagac tcctggctgt 540
gtgaaaatta aaaaatgcgt tataatgtaa                            570
```

<210> 32
<211> 1567
<212> DNA
<213> Mus sp.

<400> 32
cggacgcgtg ggcggcagcg ctgtggcggc ggctgagacg gcaggggaag gcggcggcgg 60
ctcggcccgg agtcccgctc ccgcgccatt tcggacccgg agcgagcgcg gcgcgggcct 120
gaaggcggcg gcgggagcct gaggcgcggc ggctccgcgg cgcggagaga ggcctgctga 180
aaatgactga gtataaactt gtggtggttg gagctggtgg cgtaggcaag agcgccttga 240
cgatacagct aattcagaat cactttgtgg atgagtacga ccctacgata gaggactcct 300
acaggaaaca agtagtaatt gatggagaaa cctgtctctt ggatattctc gacacagcag 360
gtcaagagga gtacagtgca atgagggacc agtacatgag aactgggag ggctttcttt 420
gtgtatttgc cataaataat actaaatcat ttgaagatat tcaccattat agagaacaaa 480
ttaaaagagt aaaggactct gaagatgtgc ctatggtcct ggtagggaat aagtgtgatt 540
tgccttctag aacagtagac acgaaacagg ctcaggagtt agcaaggagt tacgggattc 600
cgttcattga gacctcagca aagacaagac agggtgttga cgatgccttc tatacattag 660
tccgagaaat tcgaaacat aaagaaaaga tgagcaaaga tgggaagaag aagaagaaga 720
agtcaaggac aaggtgtaca gttatgtgaa tactttgtac tctttcttaa ggcacactta 780
agtaaaagtg tgattttttgt acattacact aaattattag catttgtttt agcattacct 840
aatctttttt ttttcttctg ttcgtgcaaa ctgtcagctt ttatctcaaa tgcttatttt 900
aaaagaacag tggaaacctt cttttttcta agtgccagta ttccctgggt tttggactta 960
aactagcaat gcctgtggaa gagactaaag acctgagact ctgtcttggg atttggtgca 1020
tgcagttgat tccttgctag ttctcttacc aactgtgaac actgatggga agcaggataa 1080
tgaagcttcc ggaccatccc tgctctgtgt ccatctactc atccaatgga gtcattagca 1140
gtcaatcgca gcttcactgg acactgaggg gtcacagact taggctccct ttgagtcacg 1200
tccagcgtgt cctagacttt atcatctttc agaggcgtag gcagactgtt cacaaaggct 1260
ttctctagct ttccactgca attaatcttg gtcactccct caaatagtat attttttcta 1320
gaaaagggga aaaatggaaa aaaaaaaaaa ggcaatggaa aatgttgaaa tccattcagt 1380
ttccatgtta gctaaattac tgtaagattc ctataatagc ttttcctggt aaggcagacc 1440
cagtatgaaa tagtaataac catttgggct atatttacat gctactaaat ttttgtaata 1500
attcaaacaa ctttagcata tataaaaagt tctcataaga attaagtaca aaaaaaaaaa 1560
aaaaaaa 1567

<210> 33
<211> 1534
<212> DNA
<213> Mus sp.

<400> 33
acacagactg ggggaggtgg gattcttcgc ccatagagag aggcattgaa tacgtcgact 60
ctgacatttc tcgtgagaat ggtctttcta gtaccagtgt agcaaaggaa tcataaaatt 120
tgataaactg aagacagttg gattagcagg gaagagaaga ggcacctcct ctgccagcca 180
tgatgaagga agcatcggag cctctagcca gtgtcaccag catcaataag caagacagta 240
aagtacagga tggagagata agaaaagaaa aaattggaac catcactcca tcgaaacagc 300
attcttcagt ccacttcttc ccaaagataa tggattcaga ctccaccacg ctcatcccgt 360
tgtcccgctc attttcccaa gaaatgccaa ttggcttcta ccagatcacc agcacccaga 420
acagctccac cttatcgtcc agaggacagc tggcttctaa atccaccatc ctgagctgct 480
cccacaaaga cagcagcctg ggaaagcaga gcaccagctc catggttcca cggaggcagc 540
cccagtcgag ctctgacgtg gatacgtata cttttgggaa tggtgaggat tatttccttt 600
ctttgtttgg agaatcgaag aagctcaccg cccacacacc caagccgag aacgtgagcg 660
aacacctttc tgtgatcctt gaggaagtcg gccaatttac atccagttct ctcggagaaa 720
ttaaaatagc tgaggtaaat atcaagggcc tctttgtgag gcttgtcaac tcctccaatg 780
aaaaggaagt agagattgga aaccacattc ttcagcaaaa cgtgaatgga cacgcagtct 840
ccttgtacca gttccccgac aacatcacac tgcaggccaa ctccacggtg acagtgtggg 900
cagcagcttc ggaagcaaag ccacagccac caacggactt tgtttgggag gaacagagca 960
agttccgatc cagtccggac tgcacgacca tcttgtgcaa gcccaatggt gaggccattg 1020

```
cctggtacac tcctatccac tggaagcaag cctgggagaa gttagagact gacattgaat 1080
tcgaaagatg ctcagtggtg gtcccatcaa tgagaaacca catgtttgga tggataacag 1140
catctgtctc ttccacaaac gaggagaaag aagaaccaat acagaaaacg ccctcccaag 1200
tctaccctgt cctctacaga gaaaaggaaa tcccgccaac tgtcttaccc aataagagcc 1260
cctggtgccg caatcccaac acttctccac atccgtacag ctctctgatt gactcacatg 1320
actcggacat ttccgaaagc agtttagata cacagctcaa gcctcagcca accaagccca 1380
aaccagaccc agggaccaag aaaaagaaag caaagtcata agaaaatgga aagccatgaa 1440
atctgtgaac gtgagtaact attgtagagt tgctttataa caaaatattc cacaaataat 1500
tgcaataaat ttttgagggt ctcgctttat gacc                            1534
```

```
<210> 34
<211> 1353
<212> DNA
<213> Mus sp.
```

```
<400> 34
gggccgtggt gccgcaaagc gctggagtga ggcggtctga gcaagctgtc gtctggaccc 60
cagacctgct ggtggtgaag tatatcatgt ataaaagtgg atcaattcca tgttaagtga 120
aaatggccaa ttcgttacga ggagaagtac tgactcttta taaaaatctg ctgtatcttg 180
gacgggacta tccaaaagga gcagactatt ttaaaaggcg tttgaagaac gttttcctta 240
aaaacaagga tgtggaggac ccagagaaga tcaaagaact tatcgcacga ggagaatttg 300
taatgaagga gctagaggcc ttgtacttcc ttaggaaata cagagctatg aagcaacgtt 360
actattcaga taccaaagtc tgaccaatca ttgcaccagt cgagctgaca accagtgctg 420
gctgtttgcc tgtaccaact attaaaaaat aattcagttt aaaagggtga gatacatggt 480
ttttaaaaaa atgagttgcc ctactgtact gaaataggtt tcaaccttat tgatactgag 540
agctttgccc ataatccttt tattactgaa atagtaactt tagtaccttt catgataata 600
taattttgaa agaaaataca cttaattttt aaacatgtta tagccaattt tcttaagtct 660
atttcttcat ttactgatga gattgtcact atcgaatggt gtctgacagg cttgcccttt 720
agcttctaga gtgtctttgt ccttgttttt tgttgttttg ttagcccatc tagtatacta 780
aagtgcatat tcaaggctct ctacagacac ctcaaaatga tttaaatgca gttatcaaaa 840
taagacatgt gaaggtgacc tctatcttga gaagctcagt gggtgactag cattgtgtag 900
ctattattcc cattattctt tgtgctgctg gcctgcctta agttctgaac cacttcaagt 960
agctttcatg aggagttgta atgttcctct atttctgcca ttaaagctgg tatattttct 1020
gtcgacctgt aaccgagtcc atgtggcagt ggacctaacc caggcaggac tgtaagttta 1080
agcaaaaatg tttatgtaat gttttttagca acgttataaa taacatttct aacttaaaag 1140
ctgcaaatag tgttgcttat aggattctgt atcaggctgg agagatggct cagtggttaa 1200
gagcactgac tgctcttcca gaggtcctga atttaattcc cagcaaccat atggtggctt 1260
acaaccatct gtaatgggat ctgatgtcca cttctggtgt gtctgaacac agacagtgta 1320
ctcatagaat aaataaataa acgaataaat ctt                             1353
```

```
<210> 35
<211> 23
<212> DNA
<213> Artificial Sequence
```

```
<220>
<223> Description of Artificial Sequence: Synthetic
      primer
```

```
<400> 35
gaccaaagcc gagcgactgc ggc                                         23
```

<210> 36
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      primer

<400> 36
cggtgtcttg atgaagaagc t   21

<210> 37
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      primer

<400> 37
tgacatccgt aaagacctct atgcc   25

<210> 38
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      primer

<400> 38
gaggtagcac gtggcgttca cgaa   24